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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/821,568	04/08/2004	Jose Remacle	VANM212.001DV1	1710

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EXAMINER	
SAJJADI, FEREYDOUN GHOTB	
ART UNIT	**PAPER NUMBER**
1633	

DATE MAILED: 12/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/821,568	REMACLE ET AL.	
	Examiner	Art Unit	
	Fereydoun G. Sajjadi	1633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 October 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-38* is/are pending in the application.

4a) Of the above claim(s) *1-26 and 34* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *27-33 and 35-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *4/8/2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8/16/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This action is in response to papers filed October 16, 2006. Applicant's response to restriction requirement of September 22, 2006 has been entered. No claims have been amended or cancelled. Claims 36-38 have been newly added. Claims 1-38 are pending in the application.

Election/Restrictions

Applicant's election of Group IV (claims 27-33 and 35), drawn to a kit for screening and/or quantification of one or more activated transcriptional factor(s), comprising binding double stranded DNA sequence(s) to an insoluble solid support by non-covalent binding is acknowledged. Claims 1-26 and 34 are withdrawn from further consideration by the Examiner, pursuant to 37 CFR 1.142(b), as being drawn to non-elected inventions. Because Applicant did not specifically traverse the requirement for restriction, the election requirement is maintained and hereby made Final.

Applicant timely responded to the restriction (election) requirement in the Paper filed October 16, 2006. Claims 27- 33 and 35-38 are currently under examination.

Priority

Acknowledgment is made of applicant's claim for foreign priority based on an application filed in the European Patent Office on 03/24/2000. It is noted, however, that applicant has not filed a certified copy of the 00870057.7 NO application as required by 35 U.S.C. 119(b), in either the instant application or the parent 09/816,763 application.

Objections to the Specification/Abstract

The abstract of the disclosure is objected to for referring to elements such as transcriptional factors, double-stranded DNA sequence and solid support surface, using numbers (1), (2), and (3) respectively. It is not clear from the body of the text, what the numbers are referring to, or what they denote.

Claim Rejections - 35 USC § 112- Second Paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 27-33 and 35-38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 27 and 36 are unclear in reciting the limitation "and possibly a second labeled antibody". It is not therefore clear under what circumstances or conditions the possibility for including a second labeled antibody would be satisfied. Thus, the metes and bounds of said possibility remain undefined.

Claim 27 is further unclear in referring to claim elements such as transcriptional factors, double-stranded DNA sequence, solid support surface, primary antibody and, labeled antibody by using numbers (1), (2), (3), (4) and (5) and respectively. While the numbering of said elements may be in accordance with the elements depicted in Fig. 1, such is not clear from the claim.

Claim 36 is further unclear. The claim refers to a double-stranded DNA sequence bound to a first member of a binding pair able to interact with a second member of the binding pair forming a spacer of at least 6.8 nm. As written, it is not clear whether the double-stranded DNA sequence is also able to interact with the second member of the binding pair, or whether the binding is limited to the first and second binding pairs. The claim is yet further unclear, because following said bindings, it is not clear whether the 6.8 nm spacer thus formed is between the first and second binding pairs or includes the double-stranded DNA.

Claims 28-33 depend from claim 27, and claims 37-38 depend form claim 36, and are therefore included in the rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
>
> This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 27-29, 31-33 and 36-38 are rejected under 35 U.S.C. §103(a) as being unpatentable over Peterson et al. (U.S. Patent No. 5,563,036, filed Apr. 29, 1994; of record) in view of Hibma et al. (Nucl. Acids Res. 22:3806-3807; 1994; of record).

A "kit" *per se* is not afforded any patentable weight, thus the instant claims are examined with respect to the elements and compositions contained in said kit.

Peterson et al. disclose a method comprising the steps of: a) binding to a solid substrate such as microtiter plate (column 5, line 34-36; column 7, line 23; column 8, lines 59-60), double-stranded DNA sequences (column 6, lines 26-28), at the concentration greater than 0.01 pmoles/cm^2 (column 10, line 26), wherein said double-stranded DNA is connected to the surface of the solid support via avidin-biotin binding (column 7, lines 13-18) or antigen/antibody binding (column 7, lines 18-19); b) contacting transcriptional factors with said solid-surface bound double-stranded DNAs (column 3, lines 1-5; column 4, lines 37-41); and c) identifying and/or quantifying a signal resulting from the binding of the transcriptional factors to said solid-surface bound double-stranded DNAs (column 8, lines 64-68). Thus, the preceding steps encompass a composition comprising the elements of the instantly claimed "kit". The authors disclose numerous transcription factor binding sequences in columns 3-5, comprising many of the members listed in table 1 of the instant application.

Peterson et al. describe the double-stranded DNA as a nucleic acid receptor coupled to a ligand, a candidate pharmacological agent and a receptor immobilized on a solid substrate that may be a filter, and the nucleic acid has at least that portion of a nucleotide sequence naturally

involved in the regulation of the transcription of the gene which is necessary for sequence-specific interaction with the transcription factor (Abstract). The nucleic acid may be any length amenable to the assay conditions and requirements and may be preferably between 18 bp and 250 bp (column 6, lines 35-38), thus addressing the limitation of at least 6.8 nm length for the spacer region. While Peterson et al. do not refer to the double stranded oligonucleotide as having a spacer, they state that the nucleic acid contains at least a portion of which is common to the gene regulatory region to which the transcription factor normally binds, the binding site portion constituting between 4 and 8 nucleotides (column 6, lines 39-48). Thus, the remaining sequence length would constitute a spacer sequence.

Peterson et al. do not teach the detection of the bound transcription factor by a first and second antibodies conjugated with an enzyme such as peroxidase, but state that the label which is used to detect protein-nucleic acid complexes may be for indirect detection such as an epitope tag, an enzyme, etc. (column 6, lines 7-14).

Hibma et al. describe a non-radioactive assay for the detection and quantitation of a DNA binding protein using an ELISA assay, that can be easily adapted for application to any known DNA binding protein for which antibodies are available (first column, p. 3806). Using double-stranded biotinylated oligonucleotides attached to streptavidin coated plates, the authors describe the use of a mouse monoclonal antibody to detect the HPV E2 protein in their assay using a peroxidase labeled anti-mouse polyclonal antibody (second column, p. 3806).

Therefore, a person of ordinary skill in the art would have been motivated to combine the labeled antibody detection method of Hibma et al. with the transcription factor binding method of Peterson et al., to quantify transcription factor binding to double stranded oligonucleotides immobilized on a solid surface. A person of ordinary skill in the art, having combined the antibody detection method of Hibma et al. for detecting and quantifying transcription factor binding, with the method of quantifying transcription factor binding, as taught by Peterson et al., would be able to practice the instantly claimed method, utilizing the composition of the instantly claimed invention, with a reasonable expectation of success.

Thus it would have been *prima facie* obvious for a person of ordinary skill in the art, to combine the product elements of Peterson et al. with the labeled antibodies of Hibma et al. at the time of the instant invention.

Claims 27, 30 and 35 are rejected under 35 U.S.C. §103(a) as being unpatentable over Peterson et al. (U.S. Patent No. 5,563,036, filed Apr. 29, 1994; of record), as applied to claims 27, 29, 31-33 and 36-38 above, in view of Church et al. (U.S. Patent No. 6,326,489, filed Aug. 5, 1997).

Peterson et al. do not teach that the solid-support be an array bearing at least 4 spots/cm^2 of solid support surface, to be used as a high-throughput screening device, but state that the methods are particularly suited to automated high throughput drug screening (column 9, lines 15-16). Church et al. describe surface bound double-stranded DNA oligonucleotide arrays for use in rapid, high-throughput screening of compounds, that bind or otherwise interact with short, double-stranded DNA sequence motifs that bind transcription factors (column 1, first paragraph). Church et al. state that the array may have virtually any number of different members and a preferred array comprises from 2 up to 1,000 members per cm^2 (column 2, lines 37-45).

Therefore, a person of ordinary skill in the art would have been motivated to combine the high throughput screening method of Church et al. with the transcription factor binding method of Peterson et al., to quantify transcription factor binding and screen compounds directed to double stranded oligonucleotides immobilized on a solid surface. A person of ordinary skill in the art, having combined the high throughput screening method of church et al., with the transcription factor binding and detection method, as taught by Peterson et al., would be able to practice the instantly claimed method, utilizing the composition of the instantly claimed invention, with a reasonable expectation of success.

Thus it would have been *prima facie* obvious for a person of ordinary skill in the art, to combine the product elements of Peterson et al. with the arrays described by Church et al. at the time of the instant invention.

Conclusion

Claims 27-33 and 35-38 are not allowable.

Any inquiry concerning this communication or earlier communications regarding the formalities should be directed to Patent Analyst William Phillips, whose telephone number is **(571) 272-0548**.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fereydoun G. Sajjadi whose telephone number is **(571) 272-3311**. The examiner can normally be reached Monday through Friday, between 7:00 am-4:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Woitach can be reached on **(571) 272-0739**. The fax phone number for the organization where this application or proceeding is assigned is **(571) 273-8300**. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989).

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at **866-217-9197** (toll-free).

For all other customer support, please call the USPTO Call Center (UCC) at **(800) 786-9199**.

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PRIMARY EXAMINER